Carbon Finance for Off-Grid Lighting: Two Ripe Market Segments







Presented at the 3rd Off-Grid Lighting Conference November 13-15, 2012 - Dakar, Senegal

Evan Mills, Ph.D.

Lumina Project

Lawrence Berkeley National Laboratory

University of California

US Department of Energy

Somewhat Improved CDM Method is Out

http://light.lbl.gov

THE LUMINA PROJECT

http://light.lbl.gov

Technical Report #5

From Carbon to Light

A New Framework for Estimating Greenhouse-Gas Reductions from Replacing Fuel-based Lighting with LED Systems

Prepared for the United Nations Framework Convention on Climate Change (UNFCCC) Small Scale Working Group Clean Development Mechanism (CDM) Executive Board

Evan Mills, Ph.D.

April 9, 2010



Acknowledgments: This report was prepared at the request of The United Nations Framework Convention on Climate Change (UNFCCC), Small Scale Working Group of the Clean Development Mechanism (CDM) Executive Board. This work was funded by The Rosenfeld Fund of the Blum Center for Developing Economies at UC Berkeley, through the U.S. Department of Energy under Contract No. DE-AC02-05CH11231. Art Rosenfeld has been a key supporter of this work. This project benefitted from valuable collaborations with Arne Jacobson, Peter Alstone, Kristen Radecsky, Jennifer Tracy, and Dustin Poppendieck at Humboldt State University; Jessica Granderson, Jim Galvin, and Francis Rubinstein at Lawrence Berkeley National Laboratory; and Maina Mumbi and Francis Ngugi in Kenya. Mark Wilson provided editorial assistance. Cover photos: Evan Mills (left), NASA (center), and The Economist (right). Other photos by Evan Mills unless otherwise noted. Dedicated to Roy Mills on his 80th Birthday.

Ideal Projects

- Large energy-intensity
- Relatively low cost of access to user
- Non-energy drivers to adoption
- Purchasing power
- Low programmatic risk
 - Additionality
 - Leakage
 - Reversion
 - Ease of monitoring & verification



- Energy use and emissions
 - \$70M/year on Lake Victoria, Lake Malawi, TZ coast
 - -85,000 Tonnes CO_2/y

- Tim Gengnagel
- Philipp Wollburg

Fuel-based practices

- Pressurized lanterns
- 8-10 hours/day
- 1-8 lanterns/boat
- Each lantern 1- 3 liters/night (avg 1.25)
 - 0.8TCO₂/lantern-year
 - About 10x traditional wick lamp per lantern
 - One boat could emit~100x more than atypical house





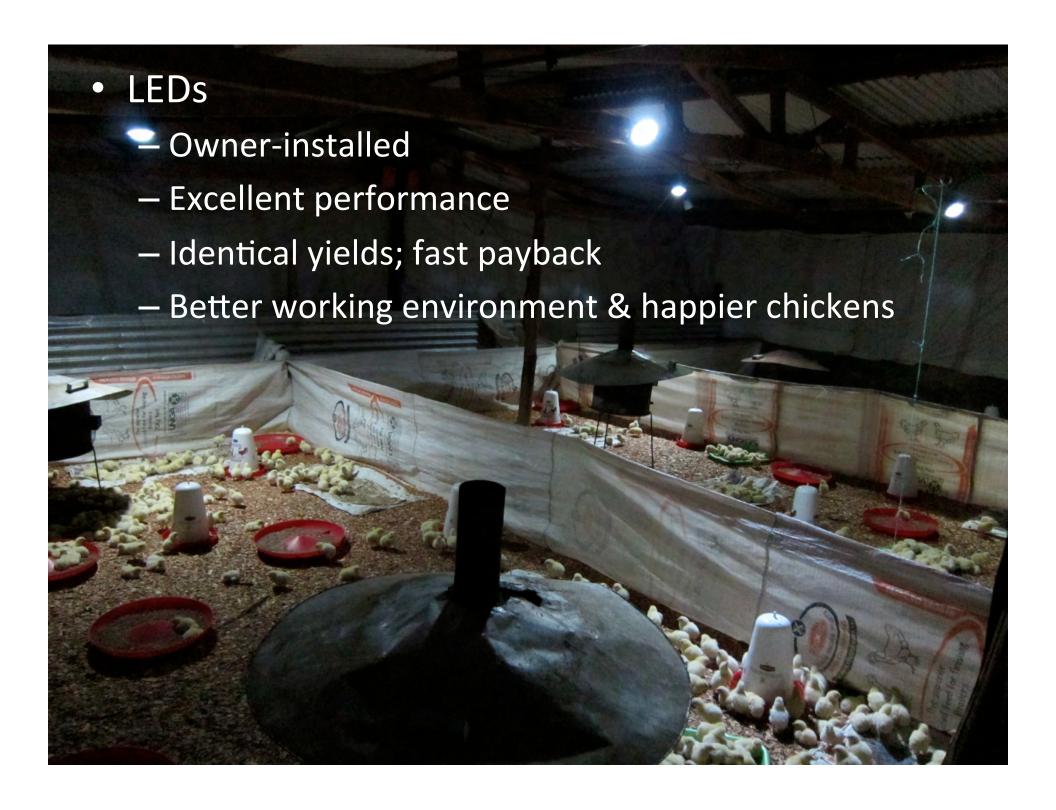
LED alternatives

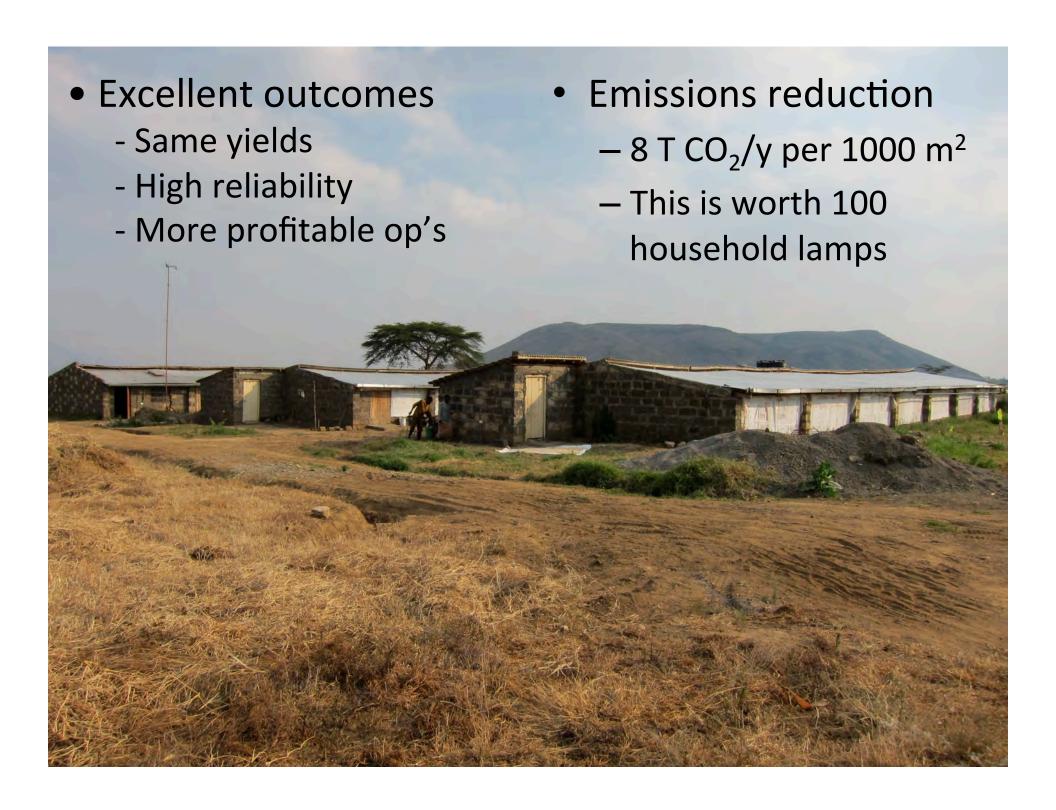
- Comparable yields
- Potentially easier to use
- Substantial demand
- Payback in months











Issues

- Additionality negligible uptake at present
- Leakage Program areas need to be properly defined
- Verification relatively easy
- Reversion key risk is quality problems....



Continue the Discussion on LuminaNET.org

